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The Effects of Maze Training Upon Transference to Standard Cloze Performance

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THE EFFECTS OF
MAZE TRAINING UPON TRANSFERENCE
TO STANDARD CLOZE PERFORMANCE

THESIS

Submitted to the Graduate Committee of the
Department of Curriculum and Instruction
Faculty of Education
State University College at Brockport
in Partial Fulfillment of the
Requirement for the Degree of
Master of Science in Education

by

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Abstract

The purpose of this study was to ascertain if there would be significant positive transfer of training for students when completing standard cloze exercises after receiving instruction in multiple-choice cloze (maze) exercises. An experimental, matched control group, pretest-posttest design was used for the study. The sample consisted of 44 fifth grade students who were equated in terms of IQ scores.

The Degrees of Reading Power Exam was administered in the fall of 1978 as a pretest to all students. The students were randomly assigned Form A or Form B just prior to its administration. The experimental group was administered Form A of the Standard Cloze test which was designed by the experimenter, in January 1979.

The treatment group received 15 minutes of instruction three times a week for a four month period. During this time the experimental group worked on activities which focused on the use of contextual clues. All of the exercises presented were constructed in the maze format. The treatment lessons for this program were based upon suggested

teaching strategies developed by the State Education Department, Division of Educational testing, at Albany. Upon completion of the four month treatment period, students were posttested. All 44 students were administered Form B of the Standard Cloze test and the alternate form of the Degrees of Reading Power Exam from the one completed in the fall.

A series of t tests was used to analyze the data at the .05 level of significance. The results indicated that the treatment group did significantly better than the control group on all posttesting tasks, and that there was significant positive transfer of training for students when completing standard cloze exercises after instruction in multiple-choice cloze (maze) exercises. Recommendations for classroom use of the cloze procedure as an instructional tool as well as recommendations for future research were given.

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CHAPTER I

Statement of the Problem

Everyday observation in the classroom technique discloses that pupils are often handicapped by an inability to derive meaning through contextual clues. The majority of the materials used in the middle elementary grades today, contrary to what research reports, draws attention to detail rather than to the integration of ideas. On close examination it is seen that students are rarely required to look at more than one sentence to complete an exercise.

In 1976 the State Education Department of New York sought to develop new ways to teach reading. Six school districts were involved in cooperating in this field research. The teaching strategies explored, concentrated on the close relationships between reading and thinking. In addition they stressed the development of a student's ability to see relationships and derive meaning through contextual clues. In conjunction with this field research was the development of a new test of reading comprehension. This new testing device entitled Degrees of Reading Power

Exam (DRP) was developed by the State Education Department with the support of a grant from the Carnegie Corporation. The DRP uses the student's ability to glean meaning across sentences as its base for measurement by using the multiple-choice cloze (maze) construction.

When using the cloze technique, one assumes that if a student understands the text of a passage, he or she will be able to fill in words that have been deleted from the reading. Thus, this instrument measures the student's ability to comprehend or glean meaning across sentences.

Numerous investigations have dealt with standard cloze tests as a measure of reading comprehension since its introduction by Taylor (1953). Horton (1974-75) concluded that the construct validity has been established. Additional investigations have established the fact that the cloze procedure is a valid and reliable instrument, by comparing it with standardized tests (Alexander, 1968; Jones & Pikulski, 1974), multiple-choice tests (Bormuth, 1967), and with informal inventories (Alexander, 1968, Jones & Pikulski, 1974). On the issue of validity, Bormuth (1969) states, "Much of the research has shown that scores on cloze tests are highly correlated with scores on standardized tests of reading comprehension ability" (p. 360).

The multiple-choice cloze procedure is also referred to as the maze technique (Guthrie, Seifert, Burnham and Caplan, 1974). In this procedure, the usual cloze blank is replaced by the selected word and a number of detractors in a multiple-choice format.

Contemporary investigations have dealt with the multiple-choice cloze (maze) as a method to measure and monitor reading comprehension (Guthrie et al., 1974). Studies have confirmed the fact that this technique is a reliable and valid instrument by correlating it to standardized tests (Guthrie, 1973), and informal inventories (Pikulski & Pikulski, 1977).

The multiple-choice cloze technique was adopted as the DRP format because it offers distinct advantages over the standard cloze procedure, in regard to application. The standard cloze has been criticized because some students find it too difficult. For these students this instrument may become an anxiety-provoking test (Cranney, 1972; Rankin, 1974). The multiple-choice cloze compensates for this because it is a less difficult form of the cloze procedure. Another advantage of the maze instrument is that it does not demand the required length of the standard cloze passage.

The sheer length of the standard cloze makes it inconveniently long as a unit of test assembly. Compared with the standard cloze, the multiple-choice will have the notable advantage of not requiring hand scoring.

A significant task facing the classroom teacher today is to incorporate methods that will stress development of a student's ability to see relationships and derive meaning through contextual clues.

Can useful habits using context clues, developed through instruction with maze exercises, be so taught that they will continue into (transfer to) being used in standard cloze exercises?

It is this question that the following study will investigate.

Purpose

The purpose of the study was to determine if maze training (multiple-choice cloze) facilitates significant positive transfer to standard cloze performance for fifth grade students.

A matched, pretest-posttest, control group design was used for this investigation.

Need for the Study

Deese (1958) concluded that there is no more important topic in the psychology of learning than the transfer of learning. From very early in life, much new learning is probably influenced in some manner by previous learning. Many educational and training programs have been based on the assumption that what is taught in the classroom will transfer to new situations. Students are sometimes taught arithmetic assuming that their instruction will be useful in a daily living situation such as making change or in balancing a monthly budget.

In view of the fact that many educational programs are designed to teach for transfer it is important to investigate this area.

Definition of Terms

Transfer of training refers to the influence of prior learning on performance in some new situation. Transfer effects may be positive, negative, or there may be no observed effect (Ellis, 1972).

Positive transfer refers to situations in which prior learning aids subsequent performance (Ellis, 1972).

Negative transfer refers to situations in which prior learning interferes with new learning (Ellis, 1972).

Zero transfer refers to situations in which there is no effect of prior learning on new learning (Ellis, 1972).

Instructional level refers to that level of material in which the child encounters some difficulty, but in which the difficulty is not so great that the child will not be able to deal successfully with it if given help from the teacher (Pikulski, 1974).

Instructional strategies as utilized in this study refers to the maze treatment lessons that will be presented to the fifth grade experimental group.

The cloze procedure is a technique of supplying the appropriate word for each omission that has been systematically deleted from the passage at specified intervals.

Standard cloze passages will consist of approximately 250 words with a structural deletion of every fifth word. Each passage will have a total of 50 deletions (Bormuth, 1965).

Multiple-choice cloze (maze) passages refers to those items in which detractors along with the selected word are presented in a multiple-choice format for each deletion.

Summary

Research has concluded that transfer of training does not occur automatically. A significant task for the professional is to assist in the assessment of the teaching curriculum. This study was designed in order to complete

such an assessment. The researcher will investigate the transfer of training for students when completing standard cloze exercises after receiving training in the multiple-choice cloze technique.

CHAPTER II

Review of the Literature

Purpose

The purpose of this investigation was to determine if there would be significant positive transfer of training for students when completing standard cloze exercises after receiving instruction in multiple-choice cloze (maze) exercises.

The research related to this study has been divided into the following seven categories:

1. Theoretical definitions of learning;
2. The nature of transfer;
3. Transfer and the educational process;
4. The cloze procedure;
5. Cloze test construction procedures;
6. Cloze tests as a valid measure of reading comprehension;
7. Degrees of Reading Power Exam: A new cloze test.

Theoretical Definitions of Learning

There are many branches and divisions of psychology and while psychologists are engaged in many kinds of functions, there appears to be a basic agreement among them that the principles of learning are the fundamental theoretical tools of modern psychology. Learning thus plays a central role in contemporary psychology.

Most human behavior can be said to be influenced by learning, particularly by the time one reaches adulthood. Man "learns" to modify his behavior when confronted with new situations. He also gains proficiency in his ability to generalize in new situations on the basis of prior "learning."

The importance of learning is reflected in its scope and generality as seen in its influence on other topics in psychology. Many efforts at improving the quality of education are based upon current knowledge of principles of learning. To the extent that the principles of learning are understood, teachers are better able to bring about changes in educational practices directed toward more effective learning of skills. In the past decade a rapidly growing

technology of learning has emerged which has developed largely from principles of learning. "Learning" should be defined in view of the fact that everyone is continuously involved in learning.

In spite of the tremendous literature in the field, there are few attempts at defining learning. Definitions are presented in general terms and frequently include undefined terms. An examination of some definitions will be presented in order to find some common factors which will help clarify what learning is.

Guthrie (1935) offered a series of definitions in his Psychology of Learning. "We shall call these changes in behavior which follow behavior learning." He proceeded: "The ability to learn, that is to respond differently to a situation because of past response to the situation.... I prefer to reserve the word 'learning' for the more lasting effects of practice. And, behavior which changes with use or practice" (p. 3).

In his Principles of Behavior, Hull (1943) gives this definition:

The essential nature of the learning process may, however, be stated quite simply. Just the inherited equipment of reaction tendencies consists of receptor-effector conditions, so the process of learning consists in the strengthening of certain of these connections as contrasted with others, or in the setting up of quite new connections. (p. 68-69)

Hull proceeded to discuss the meaning of strengthening and connections, but both of these terms had to be defined separately before even the slightest light was shed on his meaning of learning.

Hilgard (1951) states, "Learning is always an inference, derived from changes in performance, and learning is not the only factor that can cause these changes" (p. 517). The other factors listed are age, fatigue, motivation, drugs and state of the organism. Later he stated, "A precise definition of learning is not necessary so long as we agree that the inference to learning is made from changes in performances that are the result of training or experience, as distinguished from changes attributable to the temporary state of the learner" (p. 518).

In this definition the terms "experience" and "training" each need to be defined, before a clear definition can be reached.

Spence (1951) recognized that learning is in some way different from performance; that performance is observable and learning is not, that is, the term "learning" must refer to some kind of activity or state of the organism which we infer from behavior. It is assumed to be a state which is dependent upon "...past interactions of the individual with his environment (and) one of the conditions that determines his performance at any moment" (p. 691).

Of major importance in Spence's definition is the thought that learning, as a state of the organism, has some kind of neural foundation. The other definitions cited were concerned with behavioral correlations.. Some learning psychologists deny or give very little credence to the belief that something must happen in the nervous system, and some like Hebb (1949), attempt to inquire into what might possibly be happening. Hebb did not attempt a behavioral definition of learning because he saw the whole question as being extremely complicated. He did favor the view of a neural nature as the basic feature of the learning process.

Hovland (1951), after noting that scores of definitions have been proposed and none universally accepted, fell back to a definition given by Hunter as one that best fits the specifications that a definition include reference to improvement in performance that comes about as a result of practice, and to exclude changes due to adaption, fatigue, maturation, drugs, and artifacts in measurement. Hunter stated, "Learning will be defined as the change in performance associated with practice and not explicable on the basis of fatigue, of artifacts of measurement, or of receptor and effector changes" (p. 613).

McGeoch's (1942) definition, "Learning as we measure it, is a change in performance which occurs under the conditions of practice," (p. 5) is an unclear statement due to the fact that terms such as performance and practice remain undefined.

When considering the common factors in all the aforementioned definitions, an understanding of "learning" can be obtained. Learning is a relatively permanent process that is not directly seen but is something inferred from behavioral changes of the individual. Not all changes in

behavior, however, allow the inference of learning. Only those changes in behavior that can be attributed to practice variables give us "learning." Performance changes due to drugs, maturation, motivation or fatigue are not changes attributable to learning.

The skill in reading, which results from practice, is an example of learning. Improvement in athletic skills such as golf, baseball or skating are instances of learning also. In contrast, performance changes due to drugs or fatigue are not changes attributable to learning because the resulting behavior changes are usually temporary, and do not directly depend on practice.

The Nature of Transfer

Does knowing how to operate a typewriter aid one in learning to play the piano? If a person is an expert tennis player, will his skill carry over to playing badminton? These are questions that come from a persistent problem of whether training in one function transfers to other functions.

Academically speaking the problem of the influence of past experience on present behavior is generally known as "transfer of learning." Transfer of learning means that an experience on one task influences performance on some subsequent task.

The understanding of transfer can be clarified by an overview of the history of this theory.

Transfer of training was stated in its purest form by those who were proponents of the theory of formal discipline. These advocates of formal discipline believed that the mind can be trained and made more disciplined by studying certain subject matter. According to formal discipline, intensive training in subject matter, would so improve the person that the learner would thereafter behave more efficiently in a variety of new situations. Underlying this theory is the assumption that the mind has a number of powers or faculties such as memory, attention and reasoning; and that these may be improved individually, as one improves muscles, through exercise.

The beginning of this theory is somewhat of a puzzle. Formal discipline did not originate in any particular century nor in any place. Literature reveals that those contributing to its growth include Plato, Aristotle, St. Thomas Aquinas, and other scholastic philosophers such as John Locke.

Historically, formal discipline is one of the oldest of educational theories. It has been a protean theory from the time of the ancient Greeks until the present day. Educational historians such as Graves (1923) and Mulhern (1946), believe that Plato's Educational Theory seems to be the beginning of the theory of formal discipline. Plato's contention was that the precision of mathematics would train one to be exact in judgment about practical affairs in general. This theory of formal discipline tends to assume that transfer is fairly automatic.

Schools of rhetoric in ancient Rome, medieval universities and Latin grammar schools throughout Europe operated to a great extent on this theory. Throughout the nineteenth century, formal discipline was the controlling principle of American education. The Yale faculty (1829) strongly supported formal discipline in a report, original papers in relation to a course of a liberal education, helping to shape educational thinking for the greater part of the century.

According to the Yale committee, "The two great points to be gained in intellectual culture are the discipline and furniture of mind," that is, "expanding its powers and storing it with knowledge" (p. 300). The committee felt that of these, the former was the more important.

Habits of thinking, the report continued, are not to be formed by a "light and hasty course of study," but by a long close application. "A commanding object, therefore, in a collegiate course should be to call forth daily and vigorous exercise of the faculties of the student." "In laying the foundation of a thorough education, it is necessary that all the important mental faculties be brought into exercise." Toward this end, the Yale faculty insisted upon the value of the study of classical languages, but maintained that English, mathematics, the physical sciences, logic, and philosophy also had their disciplinary values" (p. 301-302).

Typically, the nineteenth century educator sought to develop all of man's faculties, but the emphasis was primarily on the development and training of all mental faculties. As Joseph Payne (1883) expressed it, instruction should be

"A species of mental gymnastics fitted to draw forth, exercise, invigorate and mature all faculties" (p. 249).

Payne maintained that education should:

...aim at quickening and strengthening the powers of observation and memory, and forming habits of careful and persevering attention; it should habituate the pupil to distinguish points of difference and recognize those of resemblance, to analyze and investigate, to arrange and classify. It should awaken and invigorate the understanding, mature the reason, chasten while it kindles the imagination, exercise the judgment and refine the taste. (p. 249-250)

Payne concluded that the study of Latin,

does eminently discipline the faculties and secure to a greater degree the formation and growth of those mental qualities which are the best preparation for the business life--whether that business is to consist in making fresh mental acquisitions or in directing the powers strengthened and matured, to professional and other pursuits. (p. 264)

Thorndike and Woodworth (1901) were early researchers to offer a challenge to the theory of formal discipline. They investigated transfer of training in perceptual tasks. Among the conclusions from this research were:

1. There were two kinds of transfer--positive and negative;

2. The amount of transfer is seldom as great as that which is obtained from direct practice;
3. The transfer which occurs is a function of the conditions of training.

Positive transfer refers to an improvement in performance after training on a second task. Negative transfer refers to a decreased performance after training. Contemporary researchers in the field of transfer utilize a third term - zero transfer. Zero transfer refers to situations in which there is no effect of prior learning on new learning (Ellis, 1972).

Thorndike (1903) continued to dispute the theory of formal discipline when he wrote that transfer of training was limited to those situations in which the two contained "identical elements." The theory of elements contended that training in one kind of activity would transfer to another so long as certain features such as aims, methods, and approaches were identical in the two tasks. "The answer which I shall try to defend is that a change in one function alters any other only in so far as the two functions have as factors identical elements" (p. 80).

William James (1896) also challenged the theory of formal discipline. He set out to test whether or not his ability to memorize poetry might be improved by previous experience in memorizing poetry. His results were that his performance was actually less efficient after training.

Many early studies of transfer failed to specify the precise variables producing transfer, even though positive or negative transfer may have been obtained. This type of research on transfer was a method of determining the effect of practice with one task upon another (Archer, 1929; Pond, 1938; Salisbury, 1934) found that mental skills involved in outlining and summarizing transfer to improve reading, as well as reasoning ability. Such studies as these were studies of gross transfer, because they did not tell anything about the processes involved in transfer. All this type of experiment has been called "nonanalytic" by Underwood (1957).

Hendrickson and Schroeder (1941) and Overing and Travers (1966) are more contemporary researchers who have studied the gross effects of transfer. Hendrickson and

Schroeder, in their 1941 experiment, obtained results indicating that verbal knowledge of a principle has a facilitating effect on the amount of transfer evident in an exercise requiring an application of that principle.

Overing and Travers, in their 1966 experiment, attempted to extend the findings of Hendrickson and Schroeder, to see what the effect upon transfer might be by introducing variations in training conditions, where relevant information and time were held constant. Results obtained confirmed the findings of Hendrickson and Schroeder that knowledge of a pertinent principle facilitated performance in a task requiring an application of that principle. Furthermore, it was observed that the amount of transfer evident was related to the manner in which the relevant principle was taught.

In recent years, there has been increased emphasis on more analytic approaches in transfer designs. The interest of the psychologist is in attempting to analyze why transfer occurs, and in distinguishing between general and specific sources of transfer. The studies of Bunch (1936) and McKinney (1933) mark the beginning of this trend of transfer research. Research such as this analyzed a variety of variables in order to specify what precise factors produced transfer.

Conditions of Transfer

Deese (1958) concluded that there is no more important topic in the psychology of learning than the transfer of learning. In view of this fact, it is important to understand the phenomenon of transfer.

A number of studies have shown that the degree of similarity between original and transfer tasks is a major factor in influencing the degree of transfer of learning (Ellis, 1958; Gibson, 1941; Haagen, 1949).

There are several kinds of transfer phenomena that are also a function of the similarity between tasks. These factors include the transfer of general factors such as warm-up.

Additional elements affecting transfer are task difficulty, degree of original learning and task variation. Several learner characteristics are also known to influence transfer. These characteristics include such items as intelligence of the learner and motivational factors, including anxiety. Many investigations which have studied

the role of intelligence of the learner do find that the more intelligent students show greater transfer (Craig, 1953; Werner, 1930). Thorndike's (1924) research offered empirical evidence of a close relationship between these two processes. In an investigation of the effect of a year's training on various high school pupils, in regard to selective and rational thinking, Thorndike found that the superior group made an average gain of 20.5 points, while the lower group made a gain of only 1.5 points. Errors made by the bright pupils gave evidence of logical transfer in that the errors usually involved one letter and were phonically predictable. This logical tendency was not, however, evidenced in the errors made by the slower pupils.

Thornike points out, "We find notable differences in gain in ability to think as measured by these tests," and reports, "but they do not seem to be due to what one studies... those who have the most to begin with gain the most during the year. Whatever studies they take will seem to produce large gains in intellect" (p. 94-95).

According to Thorndike:

The chief reason why good thinkers seem superficially to have made such gains by having taken certain school studies, is that good thinkers, having taken such studies, become better by the inherent tendency of the good to gain more than the poor from any study. When the good thinkers study Greek and Latin, these studies seem to make good thinking. Now that the good thinkers study physics and trigonometry, these seem to make good thinkers. If the abler pupils should all study physical education and dramatic art, these subjects would seem to make good thinkers. (p. 98)

However, the generalization of intelligent students showing greater transfer has not been tested over a wide variety of tasks of subjects.

Additional learner characteristics known to influence transfer include motivational factors and anxiety. If a student is poorly motivated, he will tend to learn less, thus reducing the chance of transfer to new learning situations. Spence (1964) investigated anxiety, concluding that anxiety appears to facilitate performance in relatively simple types of learning, but interferes with performance in more complex learning tasks. This knowledge has significant implications for classroom teachers since since most classroom learning generally consists of tasks of a fairly complex nature.

Gaier's (1952) findings concur with the notion that heightened anxiety lowers the threshold for additional responses desirable for adequate classroom performance.

One of the most important tasks of an educator is that of teaching students effective ways to solve problems. Many studies of problem solving have been treated as studies of transfer (Schulz, 1960). Through such studies, factors that may affect transfer have been examined. The effect of different methods of first task practice on transfer to a second task was studied by Hilgard, Irvine and Whipple (1953). In their work, college students were first required to learn solutions to card-trick problems in which they had to arrange a deck of cards so that when dealt the cards would appear in a certain order. One group was shown a formula by which the ordering could be reasoned out or understood and a control group simply memorized the solutions, but they performed significantly better when they were required to learn new but related problems. The "understanding" group had greater transfer. Thus transfer to a new task was superior when the students understood the principle involved.

Another transfer factor investigated through studies in problem solving is effects of group participation (Hudgins, 1960). He used fifth grade students and gave them three consecutive days of practice in solving math problems. In the first stage of his investigation half of the students worked in groups of four and half worked alone. Hudgins found that those who worked in groups solved more problems than those working individually. During stage two, which was the transfer phase, all of the students worked individually. Hudgins found no differences in performance between those who had earlier been group members and those who worked on an individual basis. There was no evidence that transfer was a function of working with a group. These findings indicate that more research needs to be conducted.

Task variety on transfer of problem solving is another factor which has been considered. Harlow (1949) reported that practice on a series of related problems leads to successive improvement in performance. Duncan (1958) demonstrated that task variety is an important factor in producing positive transfer. Morrisett and Hovland (1951) found similar results with their investigation.

Research has overwhelmingly concluded that transfer of training does not occur automatically.

Transfer and the Educational Process

Schools are founded on the assumption that students will remember and be able to apply at least some of what they learn to new situations.

The concept of transfer is one in which educators are especially interested. Research on transfer is plentiful and has resulted in changes being made in educational practices. Such developments as programmed-learning, individualized instruction and computer-assisted instruction represent an effort to apply knowledge about the psychology of transfer to some problems of education.

The teacher's acceptance or rejection of the formal discipline theory, or the identical element explanation will be reflected in day-to-day teaching practices. The "subject-matter" teacher is likely to believe that exposure to the content of certain courses is the objective of education.

Methods of teaching and the attempt to link content and the needs of the learner are often of secondary importance.

Those teachers who question the validity of the formal discipline theory ask what values are being served by pupil participation in the given curriculum. This teacher will be more willing to revise content and method in order to teach for maximum transfer of learning. The child is generally viewed as a growing organism who is constantly organizing experiences into efficient patterns of behavior.

In order to apply principles of transfer in the classroom the teacher should have a good understanding of the basic factors that do influence transfer.

Ellis (1972) offered a few guidelines for teaching so that what is taught is more likely to transfer to new learning situations (p. 105).

1. Maximize the similarity between teaching and the ultimate testing situation;

2. Provide adequate experience with the original task;
3. Provide a variety of samples when teaching concepts and principles;
4. Label or identify important features of a task;
5. Make sure the general principles are understood before expecting much transfer.

Although the concept of transfer of training is simple, the process by which it takes place is not. The skillful teacher will present facts in such a way that the pupils will be able to draw out relationships and utilize these relationships in a variety of similar tasks. As Scott (1970) points out, a teacher can have no assurance that a student has "learned" a skill unless he is able to see the student use the skill in a transfer situation. Thus, with this in mind, it is of importance that professionals continually assess the current teaching methodologies to indeed find if the skills which are being taught are in actuality being transferred by the students to new and unique tasks.

To quote Pressey and Robinson (1944):

The problem of transfer may then be considered almost educationally all pervasive. It might almost be said that if there is to be education there must be transfer, for the purpose of education is to prepare for meeting situations which must inevitably differ in many respects from the educational situation in which the preparation was acquired. (p. 573)

The Cloze Procedure

The present discussion examines the cloze technique and its potential for a useful measure of reading comprehension.

The cloze procedure was introduced to the educational community by Taylor in 1953. Numerous articles have appeared on the cloze; however, no general application of the technique has been made in readability measurement or in testing. Recently, Hansen and Hesse (1974) reported on the implementation of the cloze procedure as a testing system in Madison, Wisconsin. Their study concluded that many of the text materials being used in important content areas were too difficult for a great proportion of the student population. The cloze procedure offers a great potential in regard to making decisions about instruction. The Madison study is an illustration that amplifies these latent powers.

The limited use of the cloze technique among teachers and other professional educators is due to various reasons. Many times there exists a gap between research and practical application. Another reason may be that the format of the cloze has not been designed to be machine scored. A third reason for lack of application is that negative findings have been reported on the use of the cloze as an instructional technique (Jongsma, 1971). Bortnick and Lopardo (1973), however, concluded that instructional applications of the cloze have been restricted, and thus this technique has not yet been fully tested.

It appears that there is a great deal yet to investigate about application of the cloze procedure in regard to readability measurement, testing, and instruction.

Taylor (1953) draws upon the Gestalt theory of closure in his definition of the cloze procedure:

Cloze procedure may be defined as a method of interrupting a message from a transmitter (writer or speaker), mutilating its language pattern by deleting parts and so administering it to receivers (readers or listeners) so that their attempt to make the patterns whole again patiently yield a considerable number of cloze units. (p. 416)

A strict definition of this term limits it to a completely objective procedure wherein words are systematically deleted from a passage, usually every fifth word (Bormuth, 1969). The deleted words are replaced by standard-length blanks and the student being tested fills in the deleted words. No time limit is given. The most effective way to score the test is by counting the number of words exactly replaced, disregarding minor spelling errors. This practice is based upon the findings of Taylor (1953) and Rankin (1958), that including synonyms as correct responses slightly increases the correlations between cloze scores and comprehension test scores. However, their data show that it does so simply by increasing the variability of the scores. This effect can be obtained more easily by adding a few items to the test. Hence responses that exactly match the deleted words furnish the most valid measure of comprehension.

Differences in application of the cloze, for the most part, involves varying the number of words between deletions, which was investigated by Culhane (1970), deleting only certain grammatical parts of speech such as verbs and nouns, and providing lists of word choices for each deletion. The last procedure mentioned converts the cloze into a multiple-choice format. The multiple-choice cloze is also referred to as the maze technique (Guthrie, 1974). As mentioned before, in this procedure the selected word and a number of detractors are presented as options for each deletion.

The rationale for regarding the cloze as a measure of reading comprehension is based on the notion of the predictability of language structure. Because both the reader and the writer have common experiences with the language, and the structure of the language is regular or predictable, the reader is able to fill the deletions in the writer's message. Additionally, it may be inferred that the ability to successfully predict a large number of deletions throughout a message is an indication of the reader's total grasp of the writer's meaning. The proportion of deletions cor-

rectly completed in a cloze passage is then taken as a measure of individual comprehension of that passage.

The ability of a reader to correctly complete the words deleted in a cloze passage is relative to the difficulty of the passage. This difficulty level is reflective of the reader's familiarity with the material in the passage and the amount of redundancy of the content message. The more familiar the content and the more redundant the meaning of the message, the more easily understood or comprehended the passage will be.

The major functional use of the cloze technique is in relation to reading instruction. The cloze is seemingly an objective measure of passage comprehension.

Cloze Test Construction

Much of the early cloze research stressed the procedures for constructing cloze tests. Potter (1968) reviewed the following five-step procedure for cloze test

construction: (1) delete a number of words selected by some systematic method (every 5th, 8th, 10th) without regard for meaning or function; (2) replace each deletion with a blank of standard length; (3) administer the cloze passage to individual or groups; (4) ask the subjects to write one word for each blank, determining from the context what each deletion should be; and (5) score the test by counting the number of exact words replaced, ignoring minor spellings (p. 2).

The initial point for deleting a word is usually determined by choosing one of the first five to ten words in the second sentence. Words are regularly deleted thereafter by some systematic method, e.g., every 5th, 8th, et cetera. The test is administered under untimed conditions, and students are encouraged to guess on any item in which the correct answer is not known. The minimum number of deletions in a cloze test is usually 50 times. If every fifth word deletion pattern is utilized, a passage of a total of 250 words is necessary. Cloze tests shorter than this tend to have somewhat less than acceptable reliability (Bormuth, 1965). The standard pattern of word deletions is every five words. Although every eighth and tenth word deletions are

common patterns in research and practice (Fram, 1972; Potter, 1968). The deletion pattern should never be less than every fifth word (Fram, 1972). Bormuth (1968), Culhane, (1970), and Taylor (1956) all concur that the every fifth word pattern is most appropriate for narrative material.

Formats for the Cloze

The standard format for the cloze technique is the word deletion pattern as described above. This format may be further varied for instructional or testing purposes by manipulating the length of the selection; the type of passage chosen for deletion; and the grammatical unit chosen for deletion. In addition, these variations may be presented in other formats, including matching, and multiple-choice items.

The matching format of the cloze is simply created by listing all of the words deleted from the passage in random order at the end of the passage. The subject then chooses the correct word for each blank from this list. This technique is used largely for instruction.

Many were minstrels who, in the 1 days of the world, 2 amongst men, telling them 3 of the gods, of their 4 and their births, and of the 5 of things. Of all these 6 none was so famous as Orpheus; none could 7 truer things about the 8. He himself was half 9, and there were some who 10 that he was in truth Apollo's son.

- | | |
|----------------|----------------|
| 1. a. bulky | 6. a. bulldogs |
| b. flowery | b. twins |
| c. bent | c. tubes |
| d. risky | d. minstrels |
| e. early | e. tablets |
| 2. a. went | 7. a. waste |
| b. measured | b. wind |
| c. pierced | c. time |
| d. patted | d. cluck |
| e. voted | e. tell |
| 3. a. airports | 8. a. keys |
| b. dingos | b. coaches |
| c. telegrams | c. gods |
| d. rotors | d. straps |
| e. stories | e. cramps |
| 4. a. pulleys | 9. a. plump |
| b. sides | b. harsh |
| c. wars | c. veiled |
| d. carbons | d. divine |
| e. jaws | e. national |
| 5. a. denying | 10. a. pivoted |
| b. beginning | b. waved |
| c. colliding | c. squeezed |
| d. ranking | d. said |
| e. stuffing | e. flamed |

Figure 1. An Example of a Multiple-Choice Cloze Exercise

(Courtesy Rush Henrietta Central School District,
Henrietta, New York)

Figure 1 shows an example of the multiple-choice format of the cloze. In this example, the passage is about 70 words long, has 10 deletions, and 5 choices per deletion. The alternate choices, or detractors, are each grammatically correct.

The multiple-choice format offers distinct advantages over the standard cloze procedure in regard to application. The standard cloze has been criticized because some students find it too difficult. For these students, this instrument may become an anxiety-provoking test (Cranney, 1972; Rankin, 1974). The multiple-choice compensates for this because it is a less difficult form of the cloze procedure. Another advantage of this instrument is that it does not demand the required length of the standard cloze passage. The sheer length of the standard cloze makes it inconveniently long as a unit of test assembly. Compared with the standard cloze, the multiple-choice cloze will have the notable advantage of not requiring hand scoring.

Guthrie et al. (1974) refers to this multiple-choice cloze procedure as the maze technique. In this contemporary investigation to monitor and measure reading comprehension, findings indicated that the maze technique is a reliable and valid instrument.

Cloze Tests as a Valid Measure of Reading Comprehension

Investigations researching cloze tests as a measure of comprehension are plentiful. One major type of investigation has involved examination of correlations of cloze scores with scores on various standardized tests of reading comprehension. Cloze tests received high correlations when compared with these general measures of reading comprehension. Fram (1972) reviewed several studies of this type, as shown in Table 1.

Table 1

Correlations between Cloze Readability
Tests and Standardized Tests of Reading Achievement

Study	Subjects	Tests	Correlations
Ruddell (1963)	Elementary	Standard Achievement Paragraph Meaning	.61 to .74
Jenkinson (1957)	High School	Cooperative Reading C2	.78
Weaver & Kingston (1963)	College	Davis Reading	.25 to .51
Gallant (1974)	Elementary	Metropolitan Reading	.65 to .81
Green (1964)	College	Diagnostic Reading Survey Total Comprehension	.51
Hafner (1963)	College	Michigan Vocabulary Profile	.56

Alexander's (1968) and Jones & Pikulski's (1974) investigations likewise concur that the cloze is a valid measure of general reading comprehension. Weaver and Kingston's (1963) study as shown in Table 2 is an exception to the general tendency toward substantial correlations. After examining the relationships of cloze tests to standard tests of reading, listening and language symbolizing ability, they concluded that the "cloze tests are related only moderately to the verbal comprehension factor" (p. 259).

On the issue of validity, Bormuth (1969) states, "Much of the research has shown that scores on cloze tests are highly correlated with scores on standardized tests of reading comprehension ability" (p. 360).

A second major type of investigation has correlated cloze tests to multiple-choice tests. Bormuth (1969) questioned Weaver & Kingston's interpretation of the data on four different points: (1) they used a highly select group of college students; (2) the correlations upon which they based their calculations differed in size from those obtained by other investigators; (3) the standardized tests

they used showed unusual patterns of factor loading; and, (4) the cloze tests showed some inconsistencies among themselves in their loading patterns.

Bormuth developed nine cloze passages of approximately 250 words each, and seven multiple-choice tests were written on each passage.

The (multiple-choice) tests were written to measure comprehension of vocabulary, of explicitly stated facts, of sequence of events, of stated casual relationships, of the main ideas of the passages, of inferences, and of the author's purpose... An equal number of each type of items was written for each passage... The items were then administered to samples of subjects enrolled in grades four, five, and six. (p. 361)

Bormuth found that "the intercorrelations were high and fairly uniform across the different types of tests" (p. 363).

Taylor's (1957) and Bormuth's (1967) studies of correlating cloze tests and multiple-choice tests also support the contention that the cloze procedure is a valid and reliable measure of reading comprehension.

A few studies further suggest that, in the construction of cloze passages, deletion of the primary meaning units (nouns, main verbs, and modifiers) may result in superior measure of comprehension (Louthan, 1965). Thus it may indicate that the cloze procedure represents a purer measure of reading comprehension than the traditional multiple-choice test.

Numerous investigations have dealt with standard cloze tests as a measure of reading comprehension since its introduction by Taylor (1953). Several researchers such as Horton (1974-75) have concluded that the construct validity has been established.

Degrees of Reading Power Exam: A New Cloze Test

In 1976, the New York State Education Department became involved in the development of a new test of reading comprehension. This new testing device entitled Degrees of Reading Power Exam (DRP) was developed by the State Education Department with the support of a grant from the Carnegie

Corporation. The DRP uses the student's ability to glean meaning across sentences as its base for measurement by using the multiple-choice cloze (maze) construction.

O'Reilly & Streeter (1977) state that the cloze format was selected for a threefold reason: (1) cloze tests are highly passage-dependent; (2) since there are no questions in a cloze format, the test passage remains unaffected by the idiosyncracies of the writer; and, (3) various deletion strategies allow for the manipulation and control of syntactic, semantic and reasoning factors (p. 43).

The multiple-choice cloze technique was adopted as the DRP format because of its distinct advantages over the standard cloze procedure, in regard to application.

The Degrees of Reading Power Exam consists of a series of nonfiction prose passages on topics which were randomly selected from the Encyclopedia Britannica. These test passages are presented in order of difficulty beginning with very easy text and progressing by degrees to more difficult passages. Test items were created by the deletion of seven words in each passage, with the student selecting the most appropriate word from a list of five choices for each deletion.

The readability of each passage was determined through the use of the Bormuth formula. This formula was believed to be the best readability formula available. It takes into consideration variables, such as word length, sentence length, and the proportion of difficult words in a passage.

The State Education Department began validation studies in 1976. At this time, Byrne (1979) reports the following findings: (1) the DRP is a reliable testing instrument. In numerous cases different forms of the test produced the same evaluation about individual students; (2) the DRP measures what it claims to measure. Passage difficulty is the only factor that accounts for differences in scores; (3) previous knowledge of test contents does not affect a student's score if passages are well above or below the student's reading level. If passages are at a student's level, however, previous knowledge of contents may affect scores; (4) the DRP is "culture fair." Information about the race, ethnic origin or sex of a student are not needed to interpret DRP scores; (5) the DRP is "sensitive to gain." With repeated uses it minimizes "regression effects" that are common to many standardized tests. "That is, with repeated testing,

students on the high and low end of the scoring spectrum are less likely to move toward the center than they are with other tests"; and, (6) knowledge gained from sources other than in the information provided in the test does not significantly affect test scores. The DRP measures only a student's reading abilities (p. 6).

Summary of the Chapter

This chapter has a twofold purpose: (1) to present a brief outline of the characteristics of learning, and to examine the nature of transfer; (2) to present an explanation and evaluation of the research that has dealt with the many uses of the cloze procedure.

Learning is a relatively permanent process and results in behavioral changes in the individual.

In the school situation, one cannot say a student has "learned" until he is able to draw relationships and utilize these relationships in a variety of tasks. When the student

is able to "transfer" his knowledge it can then be certain he has "learned."

Research has concluded that transfer of training does not occur automatically. The importance of assessing teaching methodologies cannot be overemphasized. The interest of the professional should be in the procurement of information to find if students are in fact utilizing what is taught in a number of new transfer activities.

An abundance of research on the cloze procedure has shown it to be a valid and reliable measure of reading comprehension. Numerous comparisons of the cloze procedure with other commonly used evaluation tools, such as multiple-choice tests, have been made. There has been a very high correlation between these measures.

The Degrees of Reading Power Exam is one potential use of the cloze procedure. These materials, developed in the multiple-choice format, will require considerable study and validation before they can be confidently used in decision making. However, if experience with these testing materials

shows that they parallel the standard cloze in the interpretations that can be made about test scores, a dramatic advantage will have been gained in testing reading comprehension.

CHAPTER III

Design of Study

The purpose of this study was to ascertain if there would be significant positive transfer of training for students when completing standard cloze exercises after receiving instruction in multiple-choice cloze (maze) exercises.

Hypotheses

The hypotheses investigated in this study were as follows:

1. There is no significant difference in the mean instructional reading levels on the posttest of the Degrees of Reading Power Exam between the fifth grade control group and the fifth grade treatment group.
2. There is no significant difference in the mean instructional reading levels on the pretest standard cloze and the posttest standard cloze, for the fifth grade treatment group.

3. There is no significant difference in the mean instructional reading levels between the pretest Degrees of Reading Power Exam and the posttest Degrees of Reading Power for the fifth grade treatment group.
4. There is no significant difference in the mean instructional reading levels on the posttest of the standard cloze between the fifth grade control group and the fifth grade treatment group.

Methodology

Subjects

The subjects involved in this study were fifth grade students attending a suburban elementary school in a predominantly middle class school district.

A total of 44 students participated in this study. There were 20 males and 24 females. The experimental group consisted of 22 fifth grade students from one self-contained

classroom. A control group of 22 fifth grade students was developed by matching with those students in the experimental group. The control subjects were students from three other fifth grade classes within the school. The two groups were equated in terms of available reading comprehension scores, IQ scores and reading instructional level scores, through the use of a t test. One student was eliminated during the course of study due to movement from the district. Table 2 provides the results of the t test.

Table 2

Equation of Control and Experimental Groups

Groups	Reading Comp.	Reading Instruction DRP Units	I.Q.
Experimental			
Mean	5.90	51.26	110.43
Standard Deviation	1.86	12.08	12.40
Control			
Mean	5.94	52.30	109.65
Standard Deviation	1.80	10.98	11.01
$t (43) =$	0.78, $p > 2.05$.299, $p > 2.05$.221, $p > 2.05$
$t_{crit} = 2.017$			

There were no significant differences between the groups for I.Q., reading instructional levels or reading comprehension scores. The reading comprehension data were taken from the May, 1977, Reading Comprehension scores on the Stanford Achievement Tests, Intermediate I, Form A. The instrument used to evaluate the reading instructional levels was the Degrees of Reading Power Exam, Forms A and B. I.Q. scores were obtained from the Lorge-Thorndike Intelligence Test.

Instruments and Procedures

The Degrees of Reading Power Exam was administered to all fifth graders during the fall of 1978. The test format was a multiple-choice cloze (maze) construction. The students were randomly assigned Form A or Form B of this test just prior to its administration.

Readabilities were performed on several random samplings from basal readers which were not currently being utilized

within the district. The passages that most closely represented the beginning third, fourth, fifth, sixth and seventh grade readability level were selected for the purpose of the standard cloze construction (Appendix A). The Spache Readability Formula was used to determine the readability of the texts designated by the publisher for grade three. The Dale-Chall Readability Formula was used to determine the readability of the texts designated by the publisher as suitable for grades four through seven.

Cloze tests having fifty deletions and approximately 250 words were constructed from the representative passage selected at each level from the various tests (Appendix B). A structural deletion of every fifth word was made. The initial and final sentences were kept intact. Scoring was based upon exact word replacement. A score within the 30-45% range of correct responses was considered to indicate an instructional reading level (Jones & Pikulski, 1974).

On the first day of the standard cloze testing, the students were given Form A of the test level that corresponded to his or her reading instructional level obtained from the DRP pretest.

The standard cloze test given to selected students at the next session depended upon his or her performance on the previous test. Students whose scores indicated an independent level (46% and above correct) were given a cloze passage at the next higher readability level, and those students who scored in the frustration range (below 30% correct) were given the cloze passage constructed at the next lower readability level. Students whose cloze test score fell within the instructional range 30-45% correct received no further testing. Follow-up testing was continued until all students obtained a standard cloze pretest score within an instructional range. The experimenter administered all of the standard cloze tests. Student attitude remained seemingly positive throughout all of the testing sessions.

Treatment

The experimental group received instruction from the researcher in the use of various contextual clue strategies. All exercises were constructed in the multiple-choice cloze.

(maze) format. The treatment lessons for this program were based upon suggested teaching strategies developed by the State Education Department, Division of Educational Training, at Albany. The treatment program was based upon the following objectives:

1. To recognize key-word concepts which have meanings basic to the paragraph--to state the paragraph's main idea in one sentence.
2. To recognize the signal words which indicate an author's organization of ideas--to locate signal words from such categories as time markers, signals of order, and concluding or summarizing signals.
3. To restore deleted words in a passage by looking for cues to meaning in the surrounding text and using what he or she already knows.

Specific objectives within each lesson plan corresponded with the aforementioned program objectives (Appendix C). The students were evaluated as instruction in each objective was completed to determine their mastery of that objective.

The treatment group received 15 minutes of instruction three times a week for a four month period. Instruction during the first class meeting each week was devoted to teaching the weekly objective. The second and third class meetings dealt with application exercises that reinforced the weekly objective. After each session, the exercises were collected by the researcher to check each student's mastery of the objective. The exercises were returned at the next class meeting with suggestions indicating how performance could be increased.

The posttesting consisted of both the treatment group and the control group being administered the alternate form of the Degrees of Reading Power Exam from the one completed in the fall of 1978, and Form B of the Standard Cloze test.

Analysis of Data

A t test was used to test the hypotheses at the .05 level of significance. Posttest scores of the students who were instructed through the maze technique were compared with the posttest scores of students in the control group.

The experimental group mean instructional reading level and the control group mean instructional reading level on the DRP and Standard Cloze were compared and analyzed.

Scores for both groups were compared for differences to decide if the treatment was associated with a change favoring the experimental group over the control group.

Summary

The experimental, matched control, pretest-posttest design was implemented to ascertain the effects of maze training upon transference to standard cloze performance. The sample consisted of 44 fifth grade students. The experimental and control groups were equated in terms of I.Q., reading comprehension scores, and reading instructional levels. During the four-month treatment period, the experimental group worked on activities focused on the use of contextual clues. All of the exercises presented were constructed in the maze format. A t test was used to analyze the data.

CHAPTER IV

Analysis of Data

Purpose

The purpose of this study was to ascertain if there would be significant positive transfer of training for students when completing standard cloze exercises after receiving instruction in multiple-choice cloze (maze) exercises.

Findings and Interpretations

The null hypotheses investigated in this study were as follows:

1. There is no significant difference in the mean instructional reading levels on the posttest of the Degrees of Reading Power Exam between the fifth grade control group and the fifth grade treatment group.
2. There is no significant difference in the mean instructional reading levels on the pretest standard cloze and the posttest standard cloze, for the fifth grade treatment group.

3. There is no significant difference in the mean instructional reading levels between the pretest Degrees of Reading Power Exam and the posttest Degrees of Reading Power Exam for the fifth grade treatment group.
4. There is no significant difference in the mean instructional reading levels on the posttest of the standard cloze between the fifth grade control group and the fifth grade treatment group.

The first hypothesis was to determine whether a significant difference existed in the mean instructional reading levels on the posttest Degrees of Reading Power Exam between the treatment and control groups. A correlated t test was used to test the hypothesis at the .05 level of significance. Table 3 provides the data from this statistical analysis.

Table 3
Mean Instructional Reading Level Scores
of the Posttest
Degrees of Reading Power Exam

<u>Source</u>		<u>Posttest</u>
Treatment		
Mean		61.05
Standard Deviation		11.34
Control		
Mean		49.18
Standard Deviation		14.61
t-ratio		5.55

There was a significant difference between the two groups on the posttest Degrees of Reading Power Exam as the data in Table 3 illustrate. At the 0.05 level of significance, and with 21 degrees of freedom, 2.080 was needed for significance. The t-ratio on the Degrees of Reading Power Exam posttest was calculated at 5.55. Therefore these data reject null hypothesis one.

Hypothesis two was to determine whether a significant difference existed in the mean instructional reading levels on the pretest standard cloze and the posttest standard cloze for the treatment group. A correlated t test was utilized to test the hypothesis at the .05 level of significance. Table 4 provides the results of this analysis.

Table 4
Standard Cloze Reading Level Scores
for the Treatment Group

Source	Pretest	Posttest
Standard Cloze		
Mean	57.90	91.55
Standard Deviation	41.08	25.57
t-ratio		4.94

The treatment groups' posttest mean score was significantly greater than the mean pretest score. The t-ratio was calculated at 4.94. These data rejected hypothesis two because the t-ratio was above the 2.080 needed for significance.

Hypothesis three was to determine whether a significant difference existed in the mean instructional reading levels on the pretest Degrees of Reading Power Exam and the post-test Degrees of Reading Power Exam for the treatment group. Table 5 provides the data obtained from the statistical analysis. A correlated t test was utilized to test this hypothesis.

Table 5

<u>Degrees of Reading Power Exam</u>		
Reading Level Scores for the Treatment Group		
Source	Pretest	Posttest
<u>Degrees of Reading Power Exam</u>		
Mean	51.73	61.05
Standard Deviation	12.44	11.34
t-ratio		6.89

There was a significant difference in the mean instructional reading level scores on the Degrees of Reading Power Exam, between the mean pretest score and the mean posttest for the treatment group. The t-ratio was calculated at 6.89. Null hypothesis three was rejected because the t-ratio was above the 2.080 needed for significance.

The final hypothesis, number four, was to determine whether a significant difference existed in the mean instructional reading levels on the posttest standard cloze between the treatment and control groups. Table 6 provides the data for this statistical analysis.

Table 6
Mean Instructional Reading Level Scores
of the Posttest
Standard Cloze

Source		Posttest
Treatment		
Mean		91.55
Standard Deviation		25.57
Control		
Mean		79.32
Standard Deviation		31.28
t-ratio		2.105

There was a significant difference between the two groups on the posttest standard cloze as Table 6 indicates. These data reject null hypothesis four. At the 0.05 level of significance and with 21 degrees of freedom, 2.080 was needed for significance. Since the t-ratio of 2.10 surpasses this level the fourth hypothesis was rejected.

Summary

The aim of this study was to ascertain if there was significant positive transfer of training for fifth grade students when completing standard cloze exercises after receiving instruction in multiple-choice cloze (maze) exercises.

A series of t tests was used to analyze the data. The findings suggest that positive transfer of training did occur for the fifth grade group.

Four null hypotheses were tested and rejected. Analysis of the data demonstrated that the treatment group had significantly greater scores on both the Degrees of Reading Power Exam and the standard cloze when compared with the control group. The analysis of the data also illustrated that the treatment group's posttest scores on both the Degrees of Reading Power Exam and the standard cloze were significantly greater than the pretest scores.

CHAPTER V

Conclusions and Implications

Purpose

The central purpose of this study was to ascertain if there would be significant positive transfer of training for fifth grade students when completing standard cloze exercises after receiving instruction in multiple-choice cloze (maze) exercises.

Conclusions

All four hypotheses, stated in null form, were rejected, leading to the following conclusions for the population studied:

1. In terms of over-all performance, the treatment group did significantly better than the control group on all posttesting tasks;
2. Practice at utilizing contextual information in maze exercises led to significant positive transfer of training to standard cloze exercises for the treatment group.

The results of this study demonstrated that the experimental effects of the training program transferred to the skills required for performance on the standard cloze test. This effect is evidence that the students did indeed learn the skill utilizing contextual information to supply words which were deleted. One possible psychological explanation of the effect of the maze training is that it caused the students to pay attention to units larger than the word. This increased ability to use contextual cues may then result from a shift in the attentional processes during reading from word units to units larger than the word. Bortnick and Lopardo (1976) report that each time a student fills in a cloze blank, he faces a problem solving task that involves the use of the context and the semantic-syntactic constraints in the language. The student must then pay increased attention to the structural patterns and language units during the reading task.

It is to be noted that the population for this study consisted of a relatively small group of students. Findings based on such small numbers must be interpreted with utmost caution. Therefore, the generalizations made must necessarily apply to this particular population, and more extensive study is needed before applying the conclusions of this study to other populations.

Implications for Research

Future investigations into the areas of transfer of training, and the cloze procedure are warranted. It is evident through examining the conclusions of the research reported, that much more comprehensive research is called for.

Investigations in the area of transfer of training would be fruitful in giving insights into what processes are involved in such general transfer as researched here. It would be valuable to attempt more analytic investigations of this transfer task so that the precise variables which produced or influenced transfer are identified. Future investigations could also be conducted in the exploration of the conditions which generally influence or produce transfer in the classroom.

The maze procedure has recently begun to be used by teachers as an instructional tool in the classroom. There are a limited number of studies which use the maze technique for instructional purposes. Future investigations could examine the effect of this teaching technique with different age and ability levels.

Finally, there was no explicit connection between the multiple-choice cloze lessons and the developmental reading program. It was anticipated that the object of the lessons would be evident to the subjects and they would begin to use their new skills in their reading lessons. The teacher was instructed not to be concerned with the lessons used with the experimental group. It would be of interest to know what changes would have occurred if the teacher had extended the treatment lessons into the developmental reading program.

Implications for Classroom Practice

The implications for teaching are particularly interesting. The findings of this study indicated that the maze treatment lessons facilitated subsequent performance. In other words, this procedure proved to maximize the effective use of classroom time, and to bring about more effective learning of knowledge and skills.

The maze tasks concentrated on the close relationship between reading and thinking and stressed the development of a student's ability to see relationships and derive meaning through contextual clues. For teachers to incorporate such

lessons into their programs, a shift in common practices may be required because the majority of present instructional workbook and practice materials draw attention to detail rather than to the integration of ideas.

It would seem that the traditional way of looking at reading comprehension in terms of the use of contextual clues needs to be re-examined. It appears that classroom teachers must be more attentive to the integration of ideas. The maze procedure might well provide a viable way to focus on this skill.

Bibliography

- Alexander, H. W. An investigation of the cloze procedure as a measuring device to identify the independent, instructional, and frustrational reading levels of pupils in intermediate grades (Doctoral dissertation, University of Illinois, 1968). Dissertation Abstracts, 1969, 24, 4314A. (University Microfilms No. 69-104, 625)
- Archer, C. P. Saving time in spelling instruction. Journal of Educational Research, 1929, 20, 122-131.
- Bormuth, J. R. Validities of grammatical and semantic classifications of cloze scores. In J. A. Figurel (Ed.), Proceedings of the Annual Convention: Reading and Inquiry, 1965, 10, 283-286.
- Bormuth, J. R. Comparable cloze and multiple-choice comprehension test scores. Journal of Reading, 1967, 10, 291-300.
- Bormuth, J. R. The cloze reliability procedure. Elementary English, 1968, 45, 429-436.
- Bormuth, J. R. Factor validity of cloze tests as measures of reading comprehension ability. Reading Research Quarterly, 1969, 4, 358-365.
- Bortnick, R. & Lopardo, G. S. Instructional application of the cloze procedure. Journal of Reading, 1973, 16, 296-300.
- Bortnick, R. & Lopardo, G. S. The cloze procedure: a multi-purpose classroom tool. Reading Improvement, 1976, 13, 113-117.
- Bunch, M. E. The amount of transfer in rational learning as a function of time. Journal of Comparative Psychology, 1936, 22, 325-337.
- Byrne, C. D. The DRP: measuring a mysterious par. Inside Education, 1979, 65, 4-6.

- Craig, R. C. The transfer value of guided learning. New York: Teachers College, Columbia University, 1953.
- Cranney, A. The construction of two types of cloze reading tests for college students. Journal of Reading Behavior, 1972, 5, 60-64.
- Culhane, J. F. Cloze procedure and comprehension. Reading Teacher, 1970, 30, 410-413.
- Deese, J. The psychology of learning. New York: McGraw-Hill, 1958.
- Duncan, C. P. Transfer after training with single versus multiple tasks. Journal of Experimental Psychology, 1958, 55, 63-72.
- Ellis, H. C. Stimulus similarity and temporal factors in verbal transfer of training (Doctoral dissertation, Washington University, 1958). Dissertation Abstracts, 1958, 19, 577-578. (University of Microfilms No. 58, 3784).
- Ellis, H. C. Fundamentals of Human Learning and Cognition. Dubuque: William C. Brown, 1972.
- Fram, R. D. A review of the literature related to the cloze procedure. Boston, Massachusetts: Boston University, 1972. (ERIC Document Reproduction Service No. ED 075 785).
- Gaier, E. J. The relationship between selected personality variables and thinking of students in discussion classes. School Review, 1952, 40, 404-411.
- Gibson, E. J. Retroactive inhibition as a function of the degree of generalization between tasks. Journal of Experimental Psychology, 1941, 28, 93-115.
- Graves, F. P. A history of education before the middle ages. New York: MacMillan, 1923.
- Guthrie, J. T. Reading comprehension and syntactic responses in good and poor readers. Journal of Educational Psychology, 1973, 65, 294-300.

- Guthrie, J. T., Seifert, M., Burnham, N. A., and Caplan, R. I. The maze technique to assess, monitor reading comprehension. The Reading Teacher, 1974, 28, 161-168.
- Haagen, C. H. Synonymity, vividness, familiarity and association value ratings of 400 pairs of common adjectives. Journal of Psychology, 1949, 27, 453-463.
- Hansen, L. H., & Hesse, K. D. A criterion-referenced assessment of reading literacy using the cloze procedure. Chicago, Illinois: American Educational Research Association, 1974. (ERIC Document Reproduction Service No. ED 090 314).
- Harlow, H. F. The formation of learning sets. Psychology Review, 1949, 56, 51-65.
- Hebb, D. O. Organization of behavior. New York: Wiley, 1949.
- Hendrickson, G., & Schroeder, W. H. Transfer of training in learning to hit a submerged target. Journal of Educational Psychology, 1941, 32, 205-213.
- Hilgard, E. R. Methods and procedures in the study of learning. In S. S. Stevens (Ed.), Handbook of Experimental Psychology, 1951, 517-567.
- Hilgard, E. R., Irvine, R. R., & Whipple, J. E. Rote memorization understanding and transfer: an extension of Katona's card trick experiments. Journal of Experimental Psychology, 1953, 46, 288-292.
- Horton, R. J. The construct validity of cloze procedure: an explanatory factor analysis of cloze paragraph reading and structure-of-intellect tests. Reading Research Quarterly, 1974-75, 10, 248-251, (Abstract).
- Hovland, C. I. Human learning and retention. In S. S. Stevens (Ed.), Handbook of Experimental Psychology, 1951, 613-689.
- Hudgins, B. B. Effects of group experience on individual problem solving. Journal of Educational Psychology, 1960, 51, 37-42.

- Hull, C. L. Principles of behavior. New York: Appleton-Crofts, 1943.
- James, W. The principles of psychology. New York: Henry Holt, 1896.
- Jones, M. B., & Pikulski, E. C. Cloze for the classroom. Journal of Reading, 1974, 17, 432-438.
- Jongsma, E. R. The cloze procedure: a survey of the research. Bloomington, Indiana: Indiana University, 1971. (ERIC Document Reproduction Service No. ED 050 893).
- Kolesnik, W. B. Mental discipline in modern education. Madison: The University of Wisconsin Press, 1962.
- Louthan, V. Some systematic grammatical deletions and their effects on reading comprehension. English Journal, 1965, 54, 295-299.
- McGeoch, J. A. The psychology of human learning. New York: Longmans-Green, 1942.
- McKinney, F. Quantitative and qualitative essential elements of transfer. Journal of Experimental Psychology, 1933, 16, 854-864.
- Morrisett, L. J., & Hovland, C. I. A comparison of three varieties of training in human problem solving. Journal of Experimental Psychology, 1959, 58, 52-55.
- Mulhern, J. A history of education. New York: Ronald Press, 1946.
- O'Reilly, R. P., & Streeter, R. E. Report on the development and validation of a system for measuring literal comprehension in multiple-choice cloze format. Journal of Reading Behavior, 1977, 9, 45-69.
- Overing, R. L., & Travers, R. M. Effects upon transfer of variation in training conditions. Journal of Educational Psychology, 1966, 57, 179-188.

- Payne, J. Lectures on the science and art of education. Boston: Willard Small, 1883.
- Pikulski, J. J. A critical review: informal reading inventories. The Reading Teacher, 1974, 28, 141-151.
- Pikulski, J. J., & Pikulski, E. C. Cloze, maze, and teacher judgment. The Reading Teacher, 1977, 30, 766-770.
- Pond, F. L. Influence of the study of Latin on word knowledge. School Review, 1938, 46, 61-64.
- Potter, T. C. A taxonomy of cloze research, part 1: Readability and reading comprehension. Inglewood, California: Southwest Regional Educational Lab., 1968. (ERIC Document Reproduction Service No. ED 035 514).
- Pressey, S. L., & Robinson, F. P. Psychology and the new education. New York: Harper, 1944.
- Rankin, E. F. An evaluation of the cloze procedure as a technique for measuring reading comprehension (Doctoral dissertation, University of Michigan, 1958). Dissertation Abstracts, 1958, 19, 733-734. (University Microfilms No. 58-3722)
- Rankin, E. F. The cloze procedure revisited. In P. L. Nacke (Ed.), Interaction: research and practice for college-adult reading. Twenty-third Yearbook of National Reading Conference, 1974, 1-8.
- Salisbury, R. A study of the transfer effects of training in logical organization. Journal of Educational Research, 1934, 28, 241-254.
- Schultz, R. W. Problem solving behavior and transfer. Harvard Educational Review, 1960, 30, 61-77.
- Scott, H. V. Transfer in education. Education, 1970, 90, 299-301.
- Spence, K. W. Theoretical interpretations of learning. In S. S. Stevens (Ed.), Handbook of Experimental Psychology, 1951, 690-729.
- Spence, K. W. Anxiety (drive) level and performance in eyelid conditioning. Psychological Bulletin, 1964, 61, 129-139.

Taylor, W. L. Cloze procedure: a new tool for measuring readability. Journalism Quarterly, 1953, 30, 416-433.

Taylor, W. L. Recent developments in the use of cloze procedure. Journalism Quarterly, 1956, 33, 42-48.

Taylor, W. L. "Cloze" readability scores as indices of individual differences in comprehension and aptitude. Journal of Applied Psychology, 1957, 41, 19-26.

Thorndike, E. L., & Woodworth, R. S. The influence of improvement in one mental function upon the efficiency of other functions (I); the estimation of magnitudes (II); functions involving attention, observation and discrimination (III), Psychology Review, 1901, pp. 247-261, 384-395, 553-564.

Thorndike, E. L. Educational Psychology. New York: Science Press, 1903.

Thorndike, E. L. Mental discipline in high school subjects. Journal of Educational Psychology, 1924, pp. 1-22, 83-98.

Underwood, B. J. Psychological Research. New York: Appleton-Crofts, 1957.

Weaver, W., & Kingston, A. A factor analysis of the cloze procedure and other measures of reading and language ability. Journal of Communication, 1963, 13, 252-261.

Werner, O. H. The influence of the study of modern foreign language on the development of desirable abilities in English. Studies in Modern Language Teaching, 1930, 17, 97-145.

Woodrow, H. The effects of training upon transference. Journal of Educational Psychology, 1927, 18, 159-172.

Yale Faculty, Original papers in relation to a course of liberal education. American Journal of Science and Arts, 1829, 15, 297-351.

Reference Notes

Multiple-choice cloze exercises: reading/literature.
Rush-Henrietta Central School District: A title IV-C
consortium project, Henrietta, New York, 1976.

Appendix A

Readabilities at Each Grade Level

<u>Page</u>	<u>Readability Level</u>
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More Roads to Follow: 3 (Scott, Foresman)
1964

102	3.71
208	4.53
48	3.84
27	3.46
77	3.62
10	3.85
*123	3.30
*187	3.09
144	3.73

Looking Ahead: 3 (Houghton Mifflin)

* 3	4.24
120	3.42
192	3.53
22	3.68

High Roads: 4 (Houghton Mifflin)

* 84	4.23
240	4.48
153	4.62
161	5.03
355	4.84

* Selected for cloze test construction as the passage closest to the 3.0, 4.0, 5.0, 6.0, and 7.0 readability level.

PageReadability Level

Sky Lines: 5 (Houghton Mifflin)

302	5.86
*132	5.03
* 52	4.98
228	4.72

Open Highways: 5 (Scott, Foresman)
1955

387	6.24
376	4.65
340	4.97
252	4.64
228	4.93

The New People & Progress: 6¹ (Scott, Foresman)

143	5.23
*248	5.99
15	4.72
83	5.28

Bright Peaks: 6 (Houghton Mifflin)

*342	5.91
277	5.87
140	5.27

PageReadability Level

High Trails: 7 (Allyn & Bacon)

224	5.78
364	6.82
315	6.60
263	7.23
227	7.73
263	6.24

Lippincott's Basic Reading: (Book L) (Lippincott)

60	6.63
110	7.93
251	8.02
*234	6.98
67	7.05
124	6.64
* 19	7.01
46	6.92
210	6.46

Textbook Publishers

Gray, W. S., Monroe, M., Artley, A. S., & Arbuthnot, M. H. (Eds.), The new basic readers: curriculum foundation series. Chicago: Scott, Foresman, 1955.

McCracken, G., & Walcutt, C. C. (Eds.), Lippincott's basic reading. Philadelphia: J. B. Lippincott, 1971.

McKee, P., McCowen, A., Harrison, M. L., Lehr, E., & Durr, W. K. (Eds.), Reading for meaning (4th ed.). Boston: Houghton Mifflin, 1966.

Robinson, M., Monroe, M., Artley, M., & Huck, C. S. (Eds.), The new basic readers: curriculum foundation series. Chicago: Scott, Foresman, 1964.

Sheldon, W. D., & McCracken, R. A. (Eds.), Sheldon basic reading series. Boston: Allyn & Bacon, 1960.

Appendix B

Cloze Tests

Cloze Test - 3rd Grade (A)

Audubon's Birds

When the baby birds were about ready to learn to use their wings, John looked for the one with the thread. He examined each baby. _____ was wearing a thread.

"_____ mother bird must have _____ it off," he told _____. "I need something stronger _____ thread. Fine wire, perhaps."

"_____ wire rust?" asked Lucy.

"_____ gold or silver wire. _____ I have none. Before _____ could ride my horse _____ the city and get _____ the baby birds would _____ have gone away."

Lucy _____ silent for a moment. _____ she spoke. "I'll bring _____ silver wire to the _____ this afternoon."

Just before _____ mother bird settled on _____ nest for the night, _____ brought a piece of _____ fine silver wire. "I _____ it out of an _____ bracelet that belonged to _____ mother," she said. "I _____ to work slowly so _____ not to harm the _____ . Is it enough?"

"Yes, _____ " said John gratefully.

That _____ each of the young _____ went to sleep with _____ bracelet of silver wire _____ one leg.

The phoebes _____ John James Audubon went _____ from Pennsylvania that winter. _____ the time spring came _____ , Audubon had already returned.

_____ Blakewell had agreed to _____ to him. The young people _____ busy getting ready for _____ marriage, but they took _____ each day to go _____ the cave in the _____ to look for their _____. The next was always _____. In fact, not a _____

phoebe was to be _____ along the creek, although
_____ was long past the _____ when they usually
appeared.

"_____ sure our phoebes are _____." said Lucy
sadly. "If they were alive, they'd be back."

Marshall, J. Audubon's birds. In H. M. Robinson, M.
Monroe, A. S. Artley & C. S. Huck (Eds.), More Roads to
Follow. Chicago: Scott, Foresman, 1964, 117-126.

Cloze Test - 3rd Grade (B)

The Three Wishes: A Swedish Tale

There was once a man who was very poor. He and his wife _____ in a humble cottage. _____ day the man went _____ the forest to chop _____.

One day in the _____ he said to himself, " _____ dear! I am so _____! I am poor, and _____ have to work hard _____ day long.

"My wife is _____ hungry. And I am _____, too. We never have _____ to put on our _____. We don't have meat _____ eat, not even a _____, thick stew. Oh, I _____ unhappy! I am unhappy _____!"

At that moment a _____ fairy appeared before the _____. She said to him, " _____ heard everything that you _____ been saying. I am _____ for you and would _____ to help you. Ask _____ whatever you like. Your _____ three wishes shall be _____."

Then the fairy disappeared _____ as suddenly as she _____ come.

The man felt _____ to the fairy and _____ much excited. "I'll hurry _____ and tell my wife _____ the wishes!" he cried.

_____ man ran to his _____. "Wife! Wife!" he called. "_____ are very fortunate! I _____ a fairy in the _____, who granted me three _____. 'Ask for whatever you _____,' she said, 'Your wishes _____ be granted.' Oh, Wife! _____ fortunate we are!"

"We _____ fortunate indeed," declared the _____. "And I am so _____! Let's go into the _____ and discuss what to _____ for."

The pair went _____ their humble cottage. "I'm _____, wife," said the man. _____ like some dinner. We _____ talk about the three wishes while we eat."

The man and his wife sat at the table to eat their meal and to discuss the wishes.

The Three Wishes: A Swedish Tale. In H. M. Robinson, M. Monroe, A. S. Artley & C. S. Huck (Eds.), More Roads to Follow. Chicago: Scott, Foresman, 1964, 187-192.

Cloze Test - 4th Grade (B)

The Bicycle Tree

Jody sat on the fence, looking at his peach tree. But Jody wasn't really _____ a peach tree. He _____ seeing a bicycle tree.

_____ he sure, there was _____ bicycle on the tree. _____ the tree was just _____ peach tree covered with _____ blossoms. But Jody knew _____ many of these blossoms _____ turn into peaches. He _____ thinking of the time _____ the tree would be _____ with peaches instead of _____.

Jody thought he could _____ the peaches into a _____ without much trouble. That _____ why he thought he _____ see bicycles in his _____ tree.

"If you do _____ part, I'll have that _____," Jody told the peach _____. The tree said nothing _____ all. Like all the _____ peach trees, it just _____ there all dressed up _____ its new spring blossoms.

"_____ are you doing, Jody?" _____ Sylvie.

Sylvie was Jody's _____ sister. When Jody was _____,
Sylvie was sure to _____ near him.

"I'm looking _____ my tree," answered Jody.

_____ thought this over. "Does _____ really
grow bicycles?" she _____.

"In a way it _____," said Jody. "Pretty soon
_____ tree will have some _____ on it. Then I'll
_____ those peaches and sell _____. If I can get
_____ dollars for them I _____ pay for the bicycle."

_____ was thinking how lucky _____ was that
the bicycle _____ ready for him now. _____, his
oldest brother, had _____ the bicycle six years _____.
It had cost him more _____ than Jody could count
_____.

Two years later, Fred _____ grown too large for the bicycle. Then Jack, Jody's second-from-the-top brother, bought it.

Lawrence, M. The bicycle tree. In P. McKee, M. L. Harrison, A. McCowen, E. Lehr, & W. K. Durr (Eds.), Looking Ahead. Boston: Houghton Mifflin, 1966, 43-63.

Cloze Test - 4th Grade (A)

Eddie and the Fire Engine

Every year the people in Eddie Wilson's home town put on a big fair in the fall. For as long as _____ could remember, he had _____ with his mother and _____ older brothers to the _____ fair. Every year there _____ always something new and _____ there.

One year, when _____ Wilsons were just finishing _____ at the fair grounds, _____ sound of a fire _____ rang out.

"There's a _____!" shouted Eddie.

"Let's go _____!" cried Joe.

The boys _____ on their feet.

"Stay _____ here," said mother. "It's _____ big surprise. It's the _____ fire engine. The firemen _____ are not on duty _____ they would bring it _____ to the fair grounds _____ take the boys and _____ for rides. They have _____ turn it in next _____ because the new one _____ come."

"Oh!" cried Eddie. "_____ mean I can go _____ a ride on it?"

"_____ ten cents," said mother.

"_____, Mama! Give me ten _____ so I can ride _____ the fire engine," begged _____.

Mrs. Wilson gave each _____ the boys ten cents, _____ they ran off in _____ direction of the fire _____. It was already crowded _____ boys and girls. Eddie _____ right up beside the _____ of the fire engine _____ settled himself for the _____.

"O.K.!" he said. "Let _____ go!"

The fireman started _____ engine, and they were
_____. "What are you _____ do with this fire
_____?" Eddie shouted, long enough _____ be heard
above the _____ of the bell and _____ yelling boys
and girls.

"_____ to sell it to _____ secondhand car
dealer," the fireman shouted back.

"Say! I wish my father was a secondhand car dealer,"
said Eddie.

Haywood, C. Eddie and the fire engine. In P. McKee,
A. McCowan, M. L. Harrison, E. Lehr, & W. K. Durr (Eds.),
High Roads. New York: Houghton Mifflin, 1966, 84-96.

Cloze Test - 5th Grade (A)

Buffalo Stampede

Ellen and Dan were pioneer children. They lived in Latham, _____, in the old days _____ buffaloes and Indians still _____ the plains. One summer _____ when they were riding _____ the prairie on Peg, _____ pony, Dan noticed that _____ was getting restless. She _____ and danced. Her ears _____ pointed forward, and she _____ to run. Dan pulled _____ upon the reins to _____ her from dashing away _____ the dangerous ground because _____ did not want her _____ step into a prairie _____ hole and break her _____.

"What's the matter, Peg?" _____ cried, half angrily, "This _____ no place to run."

"_____ she wants to get _____ before the storm," Ellen _____. "I hear it thundering." _____ looked around the sky. "_____ can't see any clouds. Where's the thunder _____ from?"

Peg arched her _____ and danced nervously as
_____ held her in tight _____. He looked at the
_____ sky and frowned. He _____ puzzled and
worried by _____ mystery of the sound _____ rolled
over them and _____ them.

What was it? _____ was not the beating _____
a hail storm, nor was _____ the deep roar of _____
tornado. The sun was _____ brightly. The noise was
_____ the rumble of a _____ train, for the trail
_____ empty. The sound was _____ he had never
heard _____. He could not decide _____ it was,
but he _____ that it meant danger _____ some kind.

"A big _____ is coming!" Ellen cried _____.
"I can see the _____ it is bringing with _____."
She pointed southward over the bright prairie.

Johnston, R. Buffalo stampede. In P. McKee, A.
McCowen, M. L. Harrison, E. Lehr & W. K. Durr (Eds.), Sky
Lines. New York: Houghton Mifflin, 1966, 132-137.

Cloze Test - 5th Grade (B)

Bobo Joins the Navy

Bob was just about the strangest sailor that ever joined the Navy. For, you see, Bob _____ a bear.

It happened _____ Alaska. Bobo was hardly _____ than a cub when _____ wandered down to the _____ one day and saw _____ American supply ship in _____ harbor. Bobo had never _____ a ship before, and _____ was very curious about _____. He watched it and _____ to the strange sounds _____ came from it. Each _____ after that the little _____ came down to the _____ to watch the ship.

_____ the sailors on the _____ ship noticed Bobo, and _____ of them said, "That _____ seems to like the _____. Why don't we catch _____ and make him a _____ of our crew?" And _____ what they did.

At _____ the sailors were afraid _____ wouldn't care for a _____ life. But they were _____;

he seemed to think _____ was wonderful. They made
 _____ him a leather collar _____ two metal tags,
 such _____ sailors wear, with his _____ and the
 name of _____ ship on each tag. _____ call these
 tags "dog _____."

As Bobo grew bigger _____ was as gentle as _____.
 He liked to _____. Very often he would _____ over
 the side of _____ ship and part way _____ the
 ship's ladder. Then _____ a great splash he _____
 jump into the sea. _____ swim about for a _____,
 and when he was _____ he'd climb aboard ship _____.

One day, instead of _____ near the ship as _____,
 Bobo started in the _____ of another ship that had come
 into the harbor the night before. The bear's shipmates
 shouted at him to come back, but Bob didn't pay any attention.

Pringle, M. Bob joins the navy. In P. McKee, A.
 McCowen, M. L. Harrison, E. Lehr & W. K. Durr (Eds.), Sky
Lines. New York: Houghton Mifflin, 1966, 52-54.

Cloze Test - 6th Grade (A)

Rhyming Ink

Once there was a man called Simon Smug; his wife was called Sarah, and they kept a shop.

Every morning at eight _____ precisely, Simon unbolted the _____ door and took down _____ shutters. Then he stood _____ the counter and weighed _____ sugar and currants and _____ up parcels and made _____ bills and said, "What _____ can I get for _____, ma'am?" and "Dreadful weather _____ the time of year!" _____ all the customers. And _____ evening as the clock _____ seven, Simon put up the _____ again and fastened the _____.

"Now I'm going to _____ myself!" he would say, _____ his hand with enthusiasm.

_____ he enjoyed himself by _____ with his feet inside _____ reading the paper _____ Sarah. Sometimes he enjoyed himself _____ about the back yard _____ painting the water barrel _____ sowing

Virginian Stock seed _____ the rockery. Sometimes he
_____ himself by falling asleep _____ his chair.

And then _____ day he decided to _____ a
poet.

"You'd be _____ at the thoughts that _____
into my head, Sarah," _____ he. "I'm going to _____
them into poetry and _____ famous."

He got out _____ very large sheet of _____
and a very large _____ of ink and sat _____ at the
kitchen table. _____ looked at him proudly.

"_____ fancy me a poet's _____!" she thought,
and held _____ head two inches higher _____
usual.

Simon began to _____ as fast as he _____.
"Just listen to this _____ tell me if you _____
heard so fine a _____ to a poem," cried _____.

Some poets praise the hairy lion;

I praise the hippopotamus;

"And what comes next?" inquired Mrs. Smug.

Baker, M. & Baker, M. Rhyming ink. In W. S. Gray, M. Monroe, A. S. Artley & M. H. Arbuthnot (Eds.), The New People and Progress. Chicago: Scott, Foresman, 1955, 284-256.

Cloze Test - 6th Grade (B)

Journey's End

Slowly, steadily, Lassie came across a field.

She was not trotting _____. She was going at _____ painful walk. Her head _____ low and her tail _____ lifelessly. Her thin body _____ from side to side _____ though it took the _____ of her entire frame _____ make her legs continue _____ function.

But her course _____ straight. She was still _____ to go south.

Across _____ meadow she came in _____ tired walk. She paid _____ attention to the cattle _____ grazed on the green _____ her and that lifted _____ heads from their feeding _____ regard her as she _____.

The grass grew thicker _____ coarser as she followed _____ path. The track became _____ mud. Then the mud _____ a puddle of water, _____ the puddle was the _____ of a river.

She _____ at the trampled place. _____ was where the cattle _____ to drink and to _____ for coolness in the _____ of the day. Beyond _____ some of them stood _____, knee-deep in the slow _____. They turned and regarded _____, their jaws moving incessantly.

_____ whimpered slightly and lifted _____ head as if to _____ some scent from the _____ bank. She rocked on _____ feet for a moment. _____, wading forward tentatively, she _____ deeper and deeper. Her _____ now felt no bottom. _____ backwater began to carry _____ upstream. She began swimming, _____ tail swirling out _____ her.

This was not a _____ river, but it was _____, and its current went _____, carrying Lassie downstream.

Her _____ legs drove with the beat, her forefeet pumped steadily. The south bank moved past her, but she seemed to be getting no nearer.

Knight, E. Journey's end. In P. McKee, A. McCowen, M. L. Harrison, E. Lehr & W. K. Durr (Eds.), Bright Peaks. New York: Houghton Mifflin, 1966, 342-351.

Cloze Test - 7th Grade (A)

Dr. Kane's Rescue of His Companions

One of the bravest and most interesting of Arctic explorers was Doctor Elisha Kent Kane of the United States. In 1853 he sailed _____ second time in search _____ Sir John Franklin, who _____ been lost several years _____ in a polar expedition. _____ Kane's plan was to _____ up Baffin Bay to _____ most northern attainable point, _____ thence passing on toward _____ pole as far as _____ or sledges could carry _____, to examine the coastline _____ traces of the lost _____.

After hard battling in _____ seas, he did succeed _____ going into winter quarters _____ a point farther north _____ anyone before him had _____. But his ship, the _____, was so surrounded with _____ ice, that Dr. Kane _____ his men were obliged _____ spend two long dark _____ battling against hunger, cold, _____ the diseases caused by _____ of fresh food and _____. Even the dogs, which _____ brought from Newfoundland, lost _____ senses during the continual _____ of an Arctic winter.

_____ all this time Dr. _____ kept a journal,
in _____ he tells of many _____ in sledging over
_____ ice with his dogs, _____ capturing bears,
valruses, and _____. Among other adventures, he
_____ of the rescue of _____ companions who were
lost _____ in the snow.

Dr. Kane _____ been preparing for the _____
search by sending out _____ of men to place _____
depots--or storehouses--along _____ icy coast of
Greenland. _____ these, he planned to _____
twelve hundred pounds of _____, so that when he _____
his men started out _____ travel with dogs, they
_____ carry no heavy provisions, but get their food at
the depots, which they had stored with food in advance.

He writes in his journal: "I saw the depot-party off
yesterday."

Kane, E. K. Dr. Kane's rescue of his companions. In
G. McCracken & C. C. Walcutt (Eds.), Lippincott's Basic
Reading (Book L). Philadelphia: J. B. Lippincott, 1971,
234-239.

Cloze Test - 7th Grade (B)

The Ransom of Red Chief

We went to bed about eleven o'clock. We spread down some _____ blankets and quilts and _____ Red Chief between us. _____ weren't afraid he'd run _____. He kept us awake _____ three hours, jumping up _____ reaching for his rifle _____ screeching: "Hist! pard," in _____ and Bill's ears, as _____ fancied crackle of a _____ or the rustle of _____ leaf revealed to his _____ imagination the stealthy approach _____ the outlaw band. At _____ I fell into a _____ sleep, and dreamed that _____ had been kidnapped and _____ to a tree by _____ ferocious pirate with red _____.

Just at daybreak I _____ awakened by a series _____ awful screams from Bill. _____ weren't yells, or howls, _____ shouts, or whoops, or _____, such as you'd expect _____ a manly set of _____ organs - they were simply _____, terrifying, humiliating screams, such _____ women emit when they _____ ghosts or caterpillars, fat man _____ incontinently in a cave _____ daybreak.

I jumped up _____ see what the matter _____.
Red Chief was sitting _____ Bill's chest, with one
_____ twined in Bill's hair. _____ the other hand
he had _____ sharp case-knife we used _____
slicing bacon; and he _____ industriously and realistically
trying _____ take Bill's scalp, according _____
the sentence that had _____ pronounced upon him the
_____ before.

I got the _____ away from the kid _____ made
him lie down _____. But from the moment _____
spirit was broken. He _____ down on his side of the
bed, but he never closed an eye again in his sleep as long
as that boy was with us. I dozed off for a while, but along
toward sunup I remembered that Red Chief had said I was to
be burned at the stake at the rising of the sun.

Henry, O. The ransom of Red Chief. In G. McCracken &
C. C. Walcutt (Eds.), Lippincott's Basic Reading (Book L).
Philadelphia: J. B. Lippincott, 1971, 17-27.

Appendix C

Multiple-Choice Cloze Lesson Plans

Lesson Plan Objective 1AGeneral Aim:

Students will be able to restate the main idea of a paragraph.

Specific Objective:

Students will identify the key words in a paragraph presented orally.

Materials:

Paragraph readings will be taken from specific skills series: Getting the Main Idea, Levels C, D, E, & F.

Procedures:

1. Read the paragraph to the group.
2. Ask the group to select the words that are absolutely necessary in the paragraph. Explain that they should listen for words that name a person or thing and tell what that person or thing is doing.

3. Discuss the reasons why certain words are more important than others to the meaning of the sentence.
4. Provide additional paragraphs for practice.

Evaluation:

Can the students orally identify the words which bear the meaning?

Lesson Plan Objective 1BGeneral Aim:

Students will be able to restate the main idea of a paragraph.

Specific Objective:

Students will write the key words from a paragraph.

Materials:

Maze paragraph selections will be taken from Comprehensive Achievement Monitoring: Multiple-Choice Cloze Exercises (Reading/Literature), Forms 021, 031, & 041. These materials were developed under a Title IV-C Consortium Project, with the cooperation of BOCES No. 2, several school districts and the State Education Department, Division of Research and Evaluation.

Procedures:

1. Distribute worksheet and explain that the paragraph has deletions throughout it.

2. Ask the children to read the paragraph. Explain that the completion of the deletions is not necessary.
3. Ask the children to identify and write the key words which are essential to the paragraph.
4. Discuss the reasons why certain words are more important than others to the meaning of the selection.
5. Provide additional paragraphs for practice.

Evaluation:

Do the students list the words which bear the most meaning?

Lesson Plan Objective 1CGeneral Aim:

Students will be able to restate the main idea of a paragraph.

Specific Objective:

Students will write the main idea of a paragraph in one sentence.

Materials:

Maze paragraph selections will be taken from Comprehensive Achievement Monitoring: Multiple-Choice Cloze Exercises (Reading/Literature), Forms 021, 031, & 041.

Procedures:

1. Distribute worksheet and explain that the children are to read the paragraph.

2. Ask the children to write the main idea of the paragraph in one sentence. Explain that the deletions do not have to be completed.
3. Discuss what the main idea is for the paragraph, and have the children justify their statements.
4. Provide additional paragraphs for practice.

Evaluation:

Can the students write the main idea from each paragraph in one sentence?

Lesson Plan Objective 2AGeneral Aim:

Students will be able to identify key words which signal an author's organization of ideas.

Specific Objective:

Students will identify and discuss the function of the signal words which indicate "time markers," i.e., before, earlier, after, etc.

Materials:

Maze selections containing "time markers," which were developed by the researcher. The readings were taken from student text books and various library materials.

Procedures:

1. Distribute the maze paragraph containing "time markers" which have been underlined.

2. Ask the students to read the paragraph and locate the words which indicate an element of time.
3. Discuss the function of the "time markers" with the students.
4. Ask the children to write the main idea of the paragraph.
5. Provide additional paragraphs for practice.

Evaluation:

Student responses and justifications indicate that signal words contribute to the meaning of a paragraph.

Lesson Plan Objective 2BGeneral Aim:

Students will be able to identify key words which signal an author's organization of ideas.

Specific Objective:

Students will circle the signal words indicating "time markers."

Materials:

Maze selections containing "time markers."

Procedures:

1. Distribute maze paragraph that contains signal words indicating "time markers."
2. Ask the students to read the paragraphs and circle the signal words that indicate "time markers."

3. Discuss the reasons why certain words are considered "time markers."
4. Ask the students to write the main idea of the paragraph.
5. Provide additional paragraphs for practice.

Evaluation:

Student responses and justifications indicate that signal words contribute to the meaning of a paragraph.

Lesson Plan Objective 2CGeneral Aim:

Students will be able to identify key words which signal an author's organization of ideas.

Specific Objective:

Students will be able to identify and discuss the function of the words which indicate "signals of order," i.e. first, second, then, etc.

Materials:

Maze selections containing "signals of order."

Procedures:

1. Distribute maze paragraph that contains "signals of order" which have been underlined.
2. Ask students to read the paragraph and locate the words which indicate "signals of order."

3. Discuss the function of the underlined words.
4. Ask the children to write the main idea of the paragraph.
5. Provide additional paragraphs for practice.

Evaluation:

Student responses and justifications indicate that signal words contribute to the meaning of a paragraph.

Lesson Plan Objective 2DGeneral Aim:

Students will be able to identify key words which signal an author's organization of ideas.

Specific Objective:

Students will circle the words which indicate "signals of order."

Materials:

Maze selections containing "signals of order."

Procedures:

1. Distribute maze paragraph that contains "signal of order."
2. Ask students to read the paragraph and circle the words which indicate "signals of order."

3. Discuss the reasons why certain words are considered "signals of order."
4. Ask the children to write the main idea of the paragraph.
5. Provide additional paragraphs for practice.

Evaluation:

Student responses and justifications indicate that signal words contribute to the meaning of a paragraph.

Lesson Plan Objective 2EGeneral Aim:

Students will be able to identify key words which signal an author's organization of ideas.

Specific Objective:

Students will circle the words which indicate "time markers" and "signals of order."

Materials:

Maze selections containing "time markers" and "signals of order."

Procedures:

1. Distribute maze paragraphs that contain "time markers" and/or "signals of order."
2. Ask the students to read the paragraphs and circle the signal words.

3. Discuss the signal words identified and their functions.
4. Ask the students to write the main idea of the paragraph.
5. Provide additional paragraphs for practice.

Evaluation:

Student responses and justifications indicate that signal words contribute to the meaning of a paragraph.

Lesson Plan Objective 2FGeneral Aim:

Students will be able to identify key words which signal an author's organization of ideas.

Specific Objective:

Students will identify and discuss the words which indicate "concluding or summarizing signals," i.e. therefore and thus.

Materials:

Maze selections containing "summarizing or concluding signals."

Procedures:

1. Distribute maze paragraphs that contain "concluding or summarizing signals." The signal words have been underlined.

2. Ask the students to read the paragraph and locate the words which indicate "concluding or summarizing signals."
3. Discuss the reasons why certain words are considered "concluding or summarizing signals."
4. Ask the students to write the main idea of the paragraph.
5. Provide additional paragraphs for practice.

Evaluation:

Student responses and justifications indicate that signal words contribute to the meaning of a paragraph.

Lesson Plan Objective 2GGeneral Aim:

Students will be able to identify key words which signal an author's organization of ideas.

Specific Objective:

Students will circle the words which indicate "concluding or summarizing signals."

Materials:

Maze selections containing "concluding or summarizing signals."

Procedures:

1. Distribute maze paragraph that contains a "summarizing or concluding signals."
2. Ask the students to read the paragraph and circle the words which indicate "concluding or summarizing signals."

3. Discuss the reasons why certain words are considered "concluding or summarizing signals."
4. Ask the students to write the main ideas of the paragraph.
5. Provide additional paragraphs for practice.

Evaluation:

Student responses and justifications indicate that signal words contribute to the meaning of a paragraph.

Lesson Plan Objective 2HGeneral Aim:

Students will be able to identify key words which signal an author's organization of ideas.

Specific Objective:

Students will circle the words which indicate "time markers," "signals of order" or "concluding or summarizing signals."

Materials:

Maze selections containing "time markers," "signals of order," and/or "concluding or summarizing signals."

Procedures:

1. Distribute maze paragraph containing signal words.
2. Ask students to read the paragraph and circle the signal words.

3. Discuss the signal words identified and their functions.
4. Ask the students to write the main idea of the paragraph.
5. Provide additional paragraphs for practice.

Evaluation:

Student responses and justifications indicate that signal words contribute to the meaning of a paragraph.

Lesson Plan Objective 3AGeneral Aim:

Students will be able to restore the deleted words in a paragraph by using the cues from meaning in the surrounding text and knowledge of what he or she already has.

Specific Objective:

Students will review their knowledge of syntactic function by replacing deletions with a word having the same function as the deleted word.

Materials:

Maze selections developed by the researcher.

Procedures:

1. Distribute the maze reading that has selected parts of speech omitted, i.e. nouns, verbs, adjectives and adverbs.

2. Ask the students to complete each deletion by supplying the appropriate word from the list of choices.
3. Ask the students to analyze their responses and to tell how their choice is justified.
4. Ask the students to write the main idea of the selection.
5. Provide additional paragraphs for practice.

Evaluation:

Students recognize the appropriateness of their choices.

Lesson Plan Objective 3BGeneral Aims:

Students will be able to restore the deleted words in a selection by using the cues from meaning in the surrounding text and knowledge of what he or she already has.

Specific Objective:

Students will demonstrate an awareness to the author's sensitivity by replacing deletions with the most precise word.

Materials:

Maze selections developed by the researcher.

Procedures:

1. Distribute maze passage that has approximately 200 words (deletions focused on nouns, verbs, adjectives and adverbs).

2. Ask the students to read the passage and then complete the deletions with the best descriptive word from the list of choices.
3. Discuss the passage and the words supplied for each blank.
4. Ask the students to write the main idea of the selection.
5. Provide additional selections for practice.

Evaluation:

Students can identify the best descriptive word based on the passage's context. The students give reasons and are able to justify their choices.

Lesson Plan Objective 3CGeneral Aim:

Students will be able to restore the deleted words in a selection by using the cues from meaning in the surrounding text and knowledge of what he or she already has.

Specific Objective:

Students will develop a short maze passage to share with the class.

Materials:

Maze passages will be developed from various encyclopedia references.

Procedures:

1. Explain to the students that they are to develop a maze passage to share with the class.
2. Ask students to pick a topic of interest.

3. Assist students in locating appropriate reference materials.
4. Ask students to choose a brief passage (50-100 words) and to make 5 deletions within the text.
5. Ask the students to list 3 detractors and the selected word for each deletion.
6. Ask the students to ditto a copy of their work for each student in the class.

Evaluation:

Students can develop a brief maze passage. They can justify reasons for choosing certain words as detractors and they understand how the detractors change the meaning of their selection.